

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

This study elucidates that LAB are present in bee bread obtained from various places in Malaysia. The antimicrobial activity towards targeted bacteria was variable relating to the source of bee bread and species of stingless bee. Among the bee bread from different stingless bee species studied the bee bread from *Thorasica* spp. from Sangai Merab, Kajang, Selangor and bee bread obtained from *Thorasica* spp., *Itama* spp. and *Terpinata* spp. from Negeri Sembilan contains viable LAB while LAB was not isolated from Kedah and Terengganu bee bread samples. The antibacterial activity of these LAB isolates was effective by either the cells or cell-free supernatants at low pH (3.3 and 4.2) and this activity was lost at (pH 5, 6, 7 and 8). The isolated LAB could survive and increase in numbers in harsh condition like resistance to low pH and high bile salt concentration and suggesting that these isolates may be considered potential to be used as probiotic. The sensitivity of the LAB isolated from bee bread to antibiotics evaluated gives value to the stingless bee bread for its possible use as probiotic products. Additionally, the viability of LAB in bee bread may be one of the criteria in the selection of bee bread for health care, and food product applications. However, studies on the characterization and identification of these LAB isolates and their viability during storage of bee bread are required.